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09/889,010	03/28/2002	Per Eld Ibsen	980.1094USWO	4646

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New York, NY 10038

EXAMINER

STOCK JR, GORDON J

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 05/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/889,010

Applicant(s)

IBSEN ET AL.

Examiner

Gordon J Stock

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 51-94 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 51-72, 79, 88 and 89 is/are rejected.
- 7) ☒ Claim(s) 73-78, 80-87, and 90-94 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7, 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings and Specification

1. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings and specification are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 42a and 42b of Fig. 7; 42 and 43 of Figs. 10 and 12; 65 of Fig. 11. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 45 of Fig. 11 on line 11 of page 41. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

5. **Claim 88** is objected to for the following: "the at least one entrance aperture" lacks antecedent basis. Correction is required.

6. **Claim 87** is objected to for being improperly dependent on itself. Examiner has interpreted the claim as depending from **claim 86**.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b). Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. **Claims 51-72 and 88** are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over **claims 1-2** of U.S. Patent Application **09/907874** (Ibsen et al.). Although the conflicting claims are not identical, they are not

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patentably distinct from each other because **claims 51-72 and 88** and **claims 1-22** of both respective applications are an apparatus for monitoring/measuring spectral information comprising: a transparent body having a front side and a back side, the front side including an entrance surface having at least one entrance aperture for receiving light, and at least a first front reflecting surface, and the back side including at least a first back reflecting surface for reflecting light received from the at least one entrance aperture to the at least one front reflecting surface, and an exit surface, at least one of the at least a first front reflecting surface and the at least a first back reflecting surface including a first diffractive optical element, and at least one of the at least a first front surface and the at least a first back reflecting surface including a first focusing element, the first diffractive element being arranged to receive diverging light from the at least one entrance aperture; and a light detector unit arranged to receive light through the exit surface from the at least one reflecting surface on the front side. (**claim 51** and **claim 1** of 09/907874). As for **claim 88** and **claim 1** of 09/907874, a first diffracting means and a first focusing means of **claim 88** reads on first diffractive optical element and first focusing element of **claim 1**. As for the rest of the **claims 52-72** and **2-22** of 09/907874, all limitations of both sets of claims are approximately identical.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. **Claim 79** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase, "a variation of the output measurement signal with reference light spectrum being less than a variation in the measurement signal with reference light spectrum," is indefinite, for it is unclear as to how the variation can be less than the same variation.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. **Claims 51, 55-57, 59-64, 66, and 88** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Lemoff et al. (6,198,864)**.

As to **claim 51**, Lemoff in a optical wavelength demultiplexor discloses the following: a spectrometer, a demultiplexer; a transparent body having a front side and a back side, the front side including: an entrance aperture having at least one entrance aperture for receiving light; and at least a first front reflecting surface, and the back side including: at least a first back reflecting surface for reflecting light received from the at least one entrance aperture to the at least one front reflecting surface (the interference filters with a low reflective passband and a high reflective stopband from col. 6, lines 25-40); an exit surface, at least one of the at least a first front surface and the at least a first back reflecting surface including a first focusing element; and a light detector unit arranged to receive light through the exit surface from the at least one

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reflecting surface on the front side and to generate output signals (Fig. 2, col. 5, lines 40-53; col. 7, lines 62-67; col. 8, lines 1-10).

As for the diffracting element, Lemoff in the embodiment of Figure 2 is silent; however, Lemoff teaches that diffractive lenses can also be used for focusing an output beam (col. 7, lines 55-60). Therefore, it would be obvious to one skilled in the art to have the transparent body include diffractive lenses to focus the output beams to the detector array.

As for **claim 55**, Lemoff discloses everything as above (see **claim 51**). In addition, Lemoff discloses a front side further including at least a second front reflecting surface and the back side including at least a second back reflecting surface (Fig. 2; **41, 30, 32, 36, 20, 22, 24, 26**).

As for **claim 56**, Lemoff discloses everything as above (see **claim 51**). As for the diffractive lenses being in parallel planes, Lemoff does not explicitly state this. However, the lenses of Fig. 3 and Fig. 1 are in parallel planes to the detector array, and Lemoff teaches that the diffractive lenses may be integrated into the detector substrate (col. 7, lines 58-61). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have the diffractive lenses be in parallel planes with the detector unit in order to properly focus the light to the detector. In addition, the diffractive lenses being in parallel planes with the detector unit is an arrangement of parts. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the diffractive lenses in parallel planes with the detector unit since it has been held that rearranging parts of an invention involves only routine skill in the art.

In re Japikse, 86 USPQ 70

As for **claim 57**, Lemoff discloses everything as above (see **claim 51**). In addition, Lemoff discloses the entrance surface is parallel to the exit surface (Fig. 2).

As for **claim 59**, Lemoff discloses everything as above (see **claim 51**). In addition, Lemoff discloses the entrance aperture includes an exit face of an optical fiber (Fig. 2; col. 5, lines 10-35)

As for **claim 60**, Lemoff discloses everything as above (see **claim 51**). In addition, Lemoff discloses that lenses are preferably aspheres (col. 7, 45-61).

As for **claim 61**, Lemoff discloses everything as above (see **claim 51**). In addition, the light detector unit is positioned at a selected distance from the exit surface of the transparent body (Fig. 2). In addition, from Figs. 1 and 3, it would be obvious to one skilled in the art at the time the invention was made that the detector can be positioned at a plurality of selected distances from the exit surface of the transparent body, for the distance depends on design choice.

As for **claim 62**, Lemoff discloses everything as above (see **claim 51**). In addition, Lemoff discloses the body is unitary (Fig. 2).

As for **claim 63**, Lemoff discloses everything as above (see **claim 51**). However, Lemoff does not disclose the body of the Fig. 2 embodiment as a composite. However, Lemoff teaches that Fig. 1 is a composite in order to have a lens array for focusing (col. 7, lines 25-35). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have the body be a composite in order to incorporate in a lens array for focusing.

As for **claim 64**, Lemoff discloses everything as above (see **claim 63**). In addition, the first body part includes the front side and the second body part includes the backside (Fig. 2 in view of Fig. 1; see **claim 63** above).

As for **claim 66**, Lemoff discloses everything as above (see **claim 64**). In addition, Lemoff discloses a plurality of intermediate body parts, spacers and mechanical features and interference filters (Fig. 2 in view of Fig. 1; see **claim 64** above).

As for **claim 88**, Lemoff discloses a transparent body having a front side and a back side, the front side including: an entrance surface having at least one input means for inputting light from the object, and at least a first front reflecting surface, and the back side including: at least a first back reflecting surface for reflecting received light from the at least one entrance aperture to the at least one front reflecting surface (the interference filters with a low reflective passband and a high reflective stopband from col. 6, lines 25-40); an exit surface, at least one of the at least a first front reflecting surface and the at least a first back reflecting surface and at least one of the at least a first front surface and the at least a first back reflecting surface including a first focusing means for focusing light, light detecting means for detecting light transmitted out of the exit surface (Fig. 2, col. 5, lines 40-53; col. 7, lines 62-67; col. 8, lines 1-10).

As for the diffracting means, Lemoff in the embodiment of Figure 2 is silent; however, Lemoff teaches that diffractive lenses can also be used for focusing an output beam (col. 7, lines 55-60). Therefore, it would be obvious to one skilled in the art to have the transparent body include diffracting means to focus the output beams to the detector array.

13. **Claims 52-54** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Lemoff et al. (6,198,864)** in view of **Hopkins, II (5,644,396)**.

As for **claim 52**, Lemoff discloses everything as above (see **claim 51**). In addition, Lemoff discloses that the lenses are aspheres (col. 7, lines 45-60). However, Lemoff is silent concerning aberration correcting elements. Hopkins in a spectrograph with a low focal ratio teaches using aspheric lenses and devices to correct for spherical aberration and astigmatism (col. 3, lines 65-67; col. 4, lines 1-15). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have a first focusing element incident on an aberration correcting element in order to correct for spherical aberration and astigmatism.

As for **claim 53**, Lemoff in view of Hopkins discloses everything as above (see **claim 52**). In addition, Hopkins teaches that aspheric elements are aberration correcting elements (col. 3, lines 65-67; col. 4, lines 1-15).

As for **claim 54**, Lemoff in view of Hopkins discloses everything as above (see **claim 52**). However, Lemoff is silent concerning tilting exit surface. Hopkins teaches tilting detector surface to compensate for chromatic aberration (col. 3, lines 60-65). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have the exit surface and detector surface tilted in order to compensate for chromatic aberration.

14. **Claim 58** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Lemoff et al. (6,198,864)** in view of **Ridyard et al. (5,812,262)**—cited by applicant.

As for **claim 58**, Lemoff discloses everything as above (see **claim 51**). Lemoff is silent concerning a slit. However, Ridyard in a radiation detector teaches a transparent body with an entrance aperture defined by a slit (Fig. 1, **18**). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have the entrance aperture comprise a slit in order to control the amount of light entering by the area of the slit.

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15. **Claim 65** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Lemoff et al. (6,198,864)** in view of **Ridyard et al. (5,812,262)**—cited by applicant-- further in view of **Lim (5,504,629)**.

As for **claim 65**, Lemoff discloses everything as above (see **claim 64**). However, Lemoff is silent concerning light absorbing material disposed between the first and second body parts. Ridyard in a waveguide for a radiation detection system teaches optical baffles between the front and back sides of the transparent body (Fig. 1, **13** and **15**). In addition, Lim in an optical projection system teaches that the optical baffle comprises light absorbing regions (col. 2, lines 12-15). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have the apparatus comprise optical baffles comprising light absorbing materials disposed between the front and back side of the transparent body in order to regulate light travel within the spectrometer.

16. **Claim 66** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Lemoff et al. (6,198,864)** in view of **Ridyard et al. (5,812,262)**—cited by applicant.

As for **claim 66**, Lemoff discloses everything as above (see **claim 64**). In addition, Lemoff discloses a plurality of intermediate body parts, spacers and mechanical features and interference filters (Fig. 2 in view of Fig. 1; see **claim 64** above). As well Ridyard in a waveguide for a radiation detection system teaches optical baffles between the front and back sides of the transparent body (Fig. 1, **13** and **15**). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have the apparatus comprise optical baffles between the front and back side in order to regulate light travel within the spectrometer.

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17. **Claims 67 and 68** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Lemoff et al. (6,198,864)** in view of **Ridyard et al. (5,812,262)**—cited by applicant.

As for **claim 67**, Lemoff discloses everything as above (see **claim 51**). However, he is silent concerning covering the transparent body by light absorbing material. Ridyard in a waveguide for a radiation detection system teaches covering the transparent body with light absorbing material for minimizing internal reflections (col. 4, lines 30-40). Therefore, it would be obvious to one skilled in the art at the time the invention was made to cover the transparent body with light absorbing material in order to minimize internal reflections.

As for **claim 68**, Lemoff in view of Ridyard discloses everything as above (see **claim 67**). In addition, Ridyard teaches that the refractive index of the light absorbing material is close to the transparent body's refractive index (col. 4, lines 38-40).

18. **Claim 69** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Lemoff et al. (6,198,864)** in view of **Ridyard et al. (5,812,262)**—cited by applicant--and further in view of **Uehara et al. (4,332,706)**.

As for **claim 69**, Lemoff in view of Ridyard discloses everything as above (see **claim 67**). However, they are silent concerning coating the body with light-absorbing material. Uehara in an internal reflection suppressing coating material for optical glass teaches a coating material for suppressing detrimental reflections of light by internal surface in optical parts (col. 1, lines 6-10 and lines 55-65). Therefore, it would be obvious to one skilled in the art at the time the invention was made to coat the transparent body with light-absorbing material to suppress internal reflections.

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19. **Claim 70** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Lemoff et al. (6,198,864)** in view of **Ridyard et al. (5,812,262)**—cited by applicant--and further in view of **Uehara et al. (4,332,706)** and further in view of **Ohkubo et al. (5,622,904)**.

As for **claim 70**, Lemoff in view of Ridyard discloses everything as above (see **claim 67**). Lemoff discloses the body made through molding techniques (col. 5, lines 30-40). However, he is silent concerning the light absorbing material being molded into the transparent body. And Ridyard discloses gluing the black glass to the body (col. 4, lines 38-60). Uehara in an internal reflection suppressing coating material for optical glass teaches a coating material for suppressing detrimental reflections of light by internal surface in optical parts (col. 1, lines 6-10 and lines 55-65) and Ohkubo in a glass material for molding optical elements teaches applying the films prior to molding the component (col. 8, lines 50-55). Therefore, it would be obvious to one skilled in the art at the time the invention was made to coat the glass prior to molding in order to mold the light absorbing material into the shape of the transparent body; whereas, the transparent body will have suppressed internal reflections.

In addition, as for the statement, "molded into the transparent body," "even though product-by-process claims are limited by and defined by a process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F. 2d 695,698, 227 USPQ 964,966 (Fed. Cir. 1985).

20. **Claims 71-72** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Lemoff et al. (6,198,864)** in view of **Hammer (WO 98/12541)**—cited by applicant.

As for **claim 71**, Lemoff discloses everything as above (see **claim 51**). In addition, Lemoff discloses four channel paths in the spectrometer system (col. 3, lines 50-55). Also Hammer in an improved spectrophotometer teaches two channels a reference and sample measurement channel are in conventional spectrometers (page 1, lines 5-24). Therefore, it would be obvious to one skilled in the art at the time to have the apparatus comprise two channel paths in order to have a reference measurement channel path and a sample measurement channel.

As for **claim 72**, Lemoff in view of Hammer discloses everything as above (see **claim 71**). However, they are silent concerning parallel paths. Hammer does teach that one path bypasses the sample and goes to the detector for reference measurement; whereas, the other path passes to the sample and then goes to a detector for sample measurement (page 1, lines 20-25). It would be obvious to one skilled in the art at the time the invention was made to have the channel paths parallel in order to have no intersection of the channel paths. In addition, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the paths arranged parallel since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70

21. **Claim 89** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Ridyard et al. (5,812,262)** (cited by applicant) in view of **Hagler (6,271,917)**.

As for **claim 89**, Ridyard discloses a method of measuring spectral information comprising: inputting signal light from the object to a transparent body through an entrance aperture on a first side of the body; propagating divergent signal light from the entrance aperture to a diffractive element on a second side of the body; diffracting the divergent signal light with the diffractive element into separated wavelength components; reflecting the divergent, separated

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wavelength components to an exit face using a reflector, reflective grating, on the second side of the body; and detecting the separated wavelength components using a detector unit (Fig. 1; col. 3, lines 10-67). Ridyard is silent concerning a focusing reflector; however, he states the spectrum is focused on the detector array (col. 4, lines 15-25). In addition, Hagler in a method of spectrum analysis teaches the use of a focusing reflective grating (col. 12, lines 25-30). Therefore, it would be obvious to one skilled in the art at the time the invention was made that the grating is a focusing element, for the spectrum is focused onto the detector array.

Allowable Subject Matter

22. **Claims 73-87 and 90-94** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and rewritten to overcome any objections or 112 second paragraph rejections stated above.

As to **claim 73**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in apparatus for measuring spectral information of light from at least one object at least one reference light source, in combination with the rest of the limitations of **claims 73-79**.

As to **claim 80**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in apparatus for measuring spectral information of light from at least one object an object distance determining unit having a light spot source for illuminating the object and a distance light detector to detect light from the light spot source reflected by the object in combination with the rest of the limitations of **claims 80-87**.

As to **claim 90**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method of measuring spectral information of light from an object reflecting the divergent signal light from the second side to the first side and back to the second side before the divergent signal light is incident on the diffractive element, in combination with the rest of the limitations of **claim 90**.

As to **claim 91**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method of measuring spectral information of light from an object illuminating the object with reference light, reference light propagating from the object to the entrance aperture entering the aperture as the signal light, and reducing spectral influence of the reference light on a spectrum signal generated by the detector unit in combination with the rest of the limitations of **claim 91**.

As to **claim 92**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method of measuring spectral information of light from an object illuminating the object with distance light and determining a distance between the object and a distance detector using distance light reflected by the object, in combination with the rest of the limitations of **claims 92-94**.

Conclusion

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 4,675,860 to Laude et al.

U.S. Patent 4,744,618 to Mahlein

U.S. Patent 5,754,290 to Rajic et al.

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U.S. Patent 5,808,763 to Duck et al.

U.S. Patent 6,303,934 to Daly et al.

Fax/Telephone Numbers

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

- 1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and
- 2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

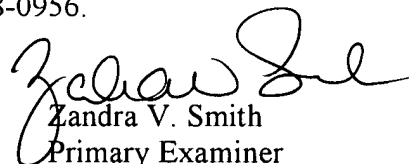
Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (703) 308-7722

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (703) 305-4787. The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

gs

May 16, 2003


Zandra V. Smith
Primary Examiner
Art Unit 2877